tate of sulphur gradually forms in the liquid, the suspension becomes practically opaque to the shorter wave-lengths first and the longer wave-lengths later, and afterwards regains its transparency partially, the shorter wave-lengths re-appearing first and later the longer wave-lengths. A theoretical explanation is offered.—E. F. **Burton** and Miss E. **Bishop**: The law of distribution of particles in colloidal solution.

### Paris.

**Academy of Sciences,** October 24.—M. Georges Lemoine in the chair.—P. **Painlevé**: Classical mechanics and the theory of relativity. A vigorous criticism of the Einstein theory, and especially of the assumptions contained in the $ds^2$ equation.—E. **Picard**: Some remarks on the theory of relativity.—A. **Haller** and Mme. P. **Ramart**: The reduction products of dimethylcampholamide. This amide, reduced with sodium and absolute alcohol, instead of furnishing the alcohol with more or less of the corresponding amine, gives only small quantities of the base, together with a substance not identified. The latter, when distilled, gives water and the nitrile of dimethylcampholic acid.—A. **Lebeuf**: Observation of the partial eclipse of the moon of October 16, 1921, made at the Besançon Observatory.—L. **Fabry**: Observation of the eclipse of the moon of October 16, 1921, made at Marseilles.—G. **Julia**: The permutability of rational substitutions.—T. **Varapoulos**: Increasing functions.—P. **Fatou**: A group of algebraic substitutions.—J. **Andrade**: Spiral cylinders and the hypothesis called *des techniciens*. A discussion of the theory of the balance spring of the chronometer.—M. **Riabouchinski**: The equations of motion of a fluid referred to mobile axes.—D. **Eydoux**: The necessity of the existence of a vortex vector in the movements of liquids, when there is a variation of energy along the trajectories of the various particles.—E. **Belot**: Contribution to the study of the formation of double stars, multiple stars, clusters, and planetary nebulæ.—A. **Danjon**: Photometric study of the eclipse of the moon of October 16–17, 1921. Two hundred and twenty-three observations were made at Strasbourg under good conditions, the object being to determine the curve of brightness ($e$) of the moon at the interior of the umbra, and of the penumbra as a function of the distance to the axis of the core. Sufficient results are given to fix the form of the curve: the theoretical values of $\log e$ in the penumbra are in good agreement with the observed values.—J. **Guillaume** and H. **Grouiller**: Observations during the eclipse of the moon of October 16, 1921, made at the Lyons Observatory.—M. **Holweck**: Critical potentials relative to the K and $L_1$ discontinuities of the absorption of aluminium. New determination of Planck's constant, $h$. The values obtained are 1560 volts for the critical potential K, 64 volts for $L_1$, and for $h$, $6{\cdot}55 \times 10^{-27}$.—P. **Pascal**: Magnetochemical research on constitution in mineral chemistry. The sulphur acids. The method of magnetic analysis has been used with success in the study of the constitution of organic compounds, and has now been employed in the examination of sulphur compounds. From the examination of sulphones, sulphonates, sulphates, hydroxylamine sulphonates, sulphites, and thiosulphates, some conclusions are drawn, the most important of which is that the magnetic properties of the sulphites are inconsistent with the unsymmetrical sulphonic constitution.—M. **Travers**: A new method for the estimation of silica. The silica is converted into potassium fluosilicate, and this titrated with standard alkali. The method has the advantage over the one in common use that neither the presence of alumina nor fluorides interfere.—M. **Grandmougin**: The identity of the dibromoanthraquinone which served for the synthesis of alizarine. Graebe and Liebermann, in their historical synthesis of alizarine, made use of a dibromoanthraquinone, the exact constitution of which has not up to now been fixed. The four homonuclear dibromoanthraquinones, the 1 : 2, 1 : 3, 1 : 4, and 2 : 3 isomers were prepared, and the last (2 : 3) found to be identical with the Graebe and Liebermann material.—Ch. **Maugin**: The possible utilisation of the diffraction diagrams of the X-rays for the complete determination of the structure of quartz.—A. **Nodon**: Experimental researches on the relations between terrestrial electrical phenomena, the state of the atmosphere, and solar foci.—Mlle. Marcelle **Guéraud**: The re-establishment of the genus Chlorocrepis in the tribe of the *Chicoraceae compositae*. *Hieracium staticefolium* was placed by Grisebach in a new species Chlorocrepis. Schultz regarded it as belonging to the genus Tolpis, and Villars placed it in the genus Hieracium, and this has been generally accepted. From the characters of the internal structure the author agrees with Grisebach, and is of the opinion that the genus Chlorocrepis should be reinstated.—R. **Souèges**: The embryogeny of the Boragacæ. The first steps of the development of the embryo in *Myosotis hispida*.—G. **Kühnholtz-Lordat**: The genetic phytogeography of the dunes of the Gulf of Lyons.—M. **Stoquer**: The influence of the temperature on the absorbent properties of soils.—J. L. **Lichtenstein**: The biology of *Habrocytus cionicida*.—F. **Angel**: The development of *Molge Waltlii* and its habitat in French Guinea.—E. **Fauré-Fremiet**: The laws of growth of the tissues constituting the fœtal lung of the sheep.—E. F. **Terroine** and H. **Barthélémy**: The existence of biometrical relations between the red frog, *Rana fusca*, and its eggs at the period of laying.—L. **Léger** and S. **Stankovitch**: The coccidiosis of the young of the carp.—L. **Blum**: A new group of diuretics; interstitial diuretics. Diuresis by the displacement of ions.—T. **Jonnesco**: The treatment of facial neuralgia by the resection of the cervico-thoracic sympathetic nerve.

### Sydney.

**Royal Society of New South Wales,** September 7.—Mr. E. C. Andrews, president, in the chair.—G. H. **Halligan**: The ocean currents around Australia. The South Australian current, sweeping the whole of the southern shore of Australia from Cape Leeuwin to Tasmania, the East Australian current, flowing southwards, the Arafura Sea current, and the currents of the north-west and west coasts are described and traced. Immediate and systematic investigation of the ocean currents around Australia is advocated in the interests of both commerce and the safety of the mercantile marine.—J. H. **Maiden**: Records of Australian botanists. Brief sketches were given of the following:—William Anderson, surgeon of Capt. Cook's third voyage from 1776 to 1779; F. M. Bailey, who for forty years (1875–1915) held botanical appointments in Queensland; E. Betche, who was connected with the Sydney Botanic Gardens from 1881 to 1916; H. H. Bradley, famous for his horticultural work; and W. R. Guilfoyle, who successfully remodelled the Melbourne Botanic Gardens.

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## Books Received.

A First Book in Algebra. By Dr. F. Durell and E. E. Arnold. Pp. v+339+xli. (New York and Chicago: C. E. Merrill Co.)

A Second Book in Algebra. By Dr. F. Durell and E. E. Arnold. Pp. v+330+xliii. (New York and Chicago: C. E. Merrill Co.)

Plane and Solid Geometry. By Dr. F. Durell and E. E. Arnold. Pp. 503. (New York and Chicago: C. E. Merrill Co.)

A Catalogue of British Scientific and Technical Books, covering every Branch of Science and Technology, carefully Classified and Indexed. Prepared by a Committee of the British Science Guild. Pp. xviii+376. (London: British Science Guild, 6 John Street.) 10*s.* net.

The Rainbow Bridge. By R. Farrer. Pp. xi+383. (London: E. Arnold and Co.) 21*s.* net.

A Text-Book of European Archæology. By Prof. R. A. S. Macalister. Vol. 1: The Palæolithic Period. Pp. xv+610. (Cambridge: At the University Press.) 50*s.* net.

A Text-Book of Wood. By H. Stone. Pp. vii+240+41 plates. (London: W. Rider and Son, Ltd.) 21*s.* net.

Eléments d'Analyse Mathématique à l'Usage des Candidats au Certificat de Mathématiques générales des Ingénieurs et des Physiciens. Cours Professé à l'Ecole Centrale des Arts et Manufactures. By Paul Appell. Quatrième édition, entièrement refondue. Pp. x+715. (Paris: Gauthier-Villars et Cie.)

Contributions to the Biology of the Danish Culicidæ. By C. Wesenberg-Lund. (D. Kgl. Danske Vidensk Selsk. Skrifter, Naturv. og Mathematisk, Afd. 8, Raekke vii., 1.) Pp. 210+21 plates. (København: A. F. Høst & Son.) 29 krone.

University of Illinois Bulletin, vol. 13, No. 45: The Genus Phoradendron. By Prof. W. Trelease. Pp. 224+245 plates. (Urbana: University of Illinois; London: Wheldon and Wesley, Ltd.) 2 dollars.

Publications of the United States Naval Observatory. Second series, vol. ix (in four parts). Part 1, Results of Observations with the Nine-inch Transit Circle, 1903–1911. Reduced under the direction of W. S. Eichelberger. Pp. cdlxi+452+6 plates. (Washington: Government Printing Office.)

Smithsonian Institution: United States National Museum. Bulletin 116: The Dipterous Genus Dolichopus Latreille in North America. By M. C. Van Duzee, F. R. Cole, and J. M. Aldrich. Pp. iv+304+16 plates. (Washington: Government Printing Office.)

Smithsonian Institution: United States National Museum. Contributions from the United States National Herbarium, vol. 22, part 5: Flora of Glacier, National Park, Montana. By P. C. Standley. Pp. viii+235–438+plates 33–52+ix–xix. (Washington: Government Printing Office.)

Smithsonian Institution: Bureau of American Ethnology. Bulletin 72: The Owl Sacred Pack of the Fox Indians. By T. Michelson. Pp. 84+4 plates. (Washington: Government Printing Office.)

Papers of the Peabody Museum of American Archæology and Ethnology, Harvard University. Vol. 8, No. 2: Basket-maker Caves of North-eastern Arizona. Report on the Explorations, 1916–17. By S. J. Guernsey and A. V. Lidder. Pp. vii+121+44 plates. (Cambridge, Mass.: Peabody Museum.)

Memoirs of the American Museum of Natural History. New Series. Vol. 3, part 2: On the Structure and Relations of *Notharctus*, an American Eocene Primate. By W. K. Gregory. Pp. 45–244+plates 23–59. Vol. 3, part 3: *Camarasaurus*, *Amphicaelias*, and other Sauropods of Cope. By H. F. Osborn and C. C. Mook. Pp. 245–387+plates 60–85. (New York: American Museum of Natural History.)

Leland Stanford Junior University Publications: University Series. Fossil Fishes of Diatom Beds of Lompoc, California. By D. S. Jordan and J. Z. Gilbert. Pp. 44+29 plates. The Genera of Fishes. By D. S. Jordan. Part 2: From Agassiz to Bleeker, 1833–58. A Contribution to the Stability of Scientific Nomenclature. Pp. ix+163–284+xiii. Part 3: From Guenther to Gill, 1859–80. Pp. ii+285–410+xv. Part 4: From 1881–1920. Pp. 411–576+xviii. Contributions toward a Monograph of the Sucking Lice. By G. F. Ferris. Part 1. Pp. 51. Studies in Ichthyology: A Monographic Review of the Family of Atherinidæ or Silversides. By D. S. Jordan and C. N. Hubbs. Pp. 87+12 plates. The Electrical Charges of Atoms and Ions. By Prof. F. Stanford. Pp. 130. Fossil Fishes of Southern California. By D. S. Jordan and J. Z. Gilbert. Pp. 66+21 plates. Biological Sciences: Vol 1, No. 1. Scale Insects of the Santa Cruz Peninsula. By G. F. Ferris. Pp. 58. Vol. 1, No. 2. Report upon a Collection of Coccidæ from Lower California. By G. F. Ferris. Pp. 59–132. (California: Stanford University.)

Das Problem der Genesis des Actiniums. By M. C. Neuburger. Pp. iii+64. (Stuttgart: F. Enke.) 5 marks.

Raum und Zeit im Lichte der Speziellen Relativitätstheorie. By Dr. C. von Horvath. Pp. v+58. (Berlin: J. Springer.) In Germany, 12 marks; in England, 36 marks.

Capita Zoologica. Verhandelingen op Systematisch-Zoologisch Gebied onder Redactie van Prof. Dr. E. D. van Oort. Deel 1, Aflevering 1: Nouvelles Recherches sur les Nématodes Libres Terricoles de la Hollande. By Dr. J. G. De Man. Pp. 62+14 plates. 10 guilders. Deel 1, Aflevering 2: Studien über Rhizostomeen mit Besonderer Berücksichtigung der Fauna des Malaiischen Archipels nebst einen Revision des Systems. By Dr. Gustav Stiasny. Pp. viii+176+5 plates. 16 guilders. ('s-Gravenhage: Martinus Nijhoff.)

University of London: Galton Laboratory for National Eugenics. Eugenics Laboratory Memoirs, vii.: On the Relationship of the Condition of the Teeth in Children to Factors of Health and Home Environment. By E. C. Rhodes. Pp. viii+80. (London: Cambridge University Press.) 9*s.* net.

Osmania Observatory, Hyderabad: Publications of the Nizamiah Observatory. Astrographic Catalogue 1900·0. Hyderabad Section. Dec. −16° to −21°. From Photographs taken and measured at the Nizamiah Observatory, Hyderabad, under the direction of the late R. J. Pocock. Completed under the supervision of T. P. Bhaskaran. Vol. 4: Measures of Rectangular Co-ordinates and Diameters of 79,590 Star-Images on Plates with Centres in Dec. −20°. (Hyderabad.)

A Manual of Practical Anatomy: A Guide to the Dissection of the Human Body. By Prof. T. Walmsley. (In three parts.) Part 2: The Thorax and Abdomen. Pp. v+233. (London: Longmans, Green and Co.) 10*s.* 6*d.* net.

The Dawn of Modern Medicine: An Account of the Revival of the Science and Art of Medicine which took place in Western Europe during the latter half of the 18th Century and the first part of the 19th. By Dr. A. H. Buck. Pp. xix+288. (New Haven: Yale University Press; London: Oxford University Press.) 25*s.* net.

The Witch-Cult in Western Europe: A Study in Anthropology. By M. A. Murray. Pp. 303. (Oxford: Clarendon Press.) 16*s.* net.

Western Australia: Geological Survey. Bulletin No. 81: The Mineral Resources of the Yalgoo Goldfield. Part 1: The Warriedar Gold-Mining Centre. By F. R. Feldtmann. Pp. 40+3 plates. Bulletin No. 79: The Mining Geology of Comet Vale and Goongarrie, North Coolgardie Goldfield. By J. T.

Jutson. Pp. 76+x+8 plates. Bulletin No. 80: The Mining Centres of Quinn's and Jasper Hill, Murchison Goldfield. By F. R. Feldtmann. Pp. 92+3 plates. (Perth: Geological Survey.)

Geschichte der Organischen Chemie. By Carl Graebe. Erster Band. Pp. x+406. (Berlin: J. Springer.) In Germany, 28 marks; in England, 84 marks.

The Ideas of Einstein's Theory: A Theory of Relativity in Simple Language. By Prof. J. H. Thirring. Translated by R. A. B. Russell. Pp. xv+167. (London: Methuen and Co., Ltd.) 5*s.* net.

Insect Transformation. By Prof. G. H. Carpenter. Pp. xi+282+4 plates. (London: Methuen and Co., Ltd.) 12*s.* 6*d.* net.

Electrodeposition and Electroplating. A General Discussion held at Sheffield, November, 1920. (Reprinted from the "Transactions of the Faraday Society," vol. 16, part 3, 1921.) Pp. iii+83. (London: Faraday Society.)

Memoirs of the Bernice Pauahi Bishop Museum. Vol. 8, No. 1: A Monographic Study of the Genus Pritchardia. By O. Beccari and J. F. Rock. Pp. ii+78+24 plates. Vol. 8, No. 2: Bayard Dominick Expedition. Publication No. 1: A Contribution to Samoan Somatology. Based on the Field Studies of E. W. Clifford and W. C. McKern. By L. R. Sullivan. Pp. 78–98+plates 25–30. (Honolulu.)

Potatoes and Pigs with Milk as the Basis of Britain's Food Supply. A Paper read before the British Association at Edinburgh, September 12, 1921. With some Hints as to the Production of Each. By Lord Bledisloe. Pp. 59. (London: Hugh Rees, Ltd.) 1*s.* net.

Die Pendulations-theorie. By Prof. Dr. H. Simroth. Zweite auflage. Pp. xvi+598. (Berlin: Konrad Grethlein.) 13.50 marks.

East Carelia and Kola Lapmark. Described by Finnish Scientists and Philologists. By Theodor Homén. Pp. xiv+264. (London: Longmans, Green and Co.) 21*s.* net.

Typical Flies: A Photographic Atlas. By E. K. Pearce. Second series. Pp. xiv+38. (Cambridge: At the University Press.) 15*s.* net.

Small Talk at Wreyland. By Cecil Torr. Second series. Pp. vi+120. (Cambridge: At the University Press.) 9*s.* net.

Common Plants. By Dr. M. Skene. (Common Things Series.) Pp. 271+26 plates. (London: A. Melrose, Ltd.) 6*s.* net.

Die Biochemie in Einzeldarstellungen. Herausgegeben von Dr. A. Kanitz. I.: Temperatur und Leblensvorgänge. By Dr. A. Kanitz. Pp. x+175. 54 marks. II.: Uber Künstliche Ernährung und Vitamine. By Prof. Dr. F. Röhmann. Pp. vi+150+2 plates. 42 marks. III.: Uber partielle Eiweisshydrolyse. By Prof. Dr. M. Siegfried. Pp. iv+64. 15 marks. IV.: Die Einwirkung von Mikroorganismen auf die Eiweisskörper. By Dr. P. Hirsch. Pp. x+256. 63 marks. (Berlin: Gebrüder Borntraeger.)

Catalogue of Double Stars from Observations made at the Royal Observatory, Greenwich, with the 28-inch Refractor during the years 1893–1919, under the Direction of Sir F. W. Dyson. Pp. xviii+229. (London: H.M. Stationery Office.) 25*s.* net.

Observations made with the Cookson Floating Zenith Telescope in the years 1911–1918 at the Royal Observatory, Greenwich, for the Determination of the Variation of Latitude and the Constant of Aberration, under the Direction of Sir F. Dyson. Pp. 76. (London: H.M. Stationery Office.) 7*s.* 6*d.* net.

Annals of the Cape Observatory. Vol. 8, part 5: Results of Meridian Observations of the Sun, Mercury, and Venus, made at the Royal Observatory, Cape of Good Hope, in the years 1912 to 1916, under the Direction of S. S. Hough. Pp. 87. (London: H.M. Stationery Office.) 7*s.* 6*d.* net.

Annals of the Cape Observatory. Vol. 10: Spectroscopic Researches. Part 5: The Radial Velocities of 120 Southern Stars, observed at the Cape. By Dr. J. Lunt. Pp. 19. 4*s.* net. Part 6: On the Variable Orbit of the Spectroscopic Binary, 42 Capricorni. By Dr. J. Lunt. Pp. 8. 1*s.* net. (London: H.M. Stationery Office.)

Results of Meridian Observations of Stars made at the Royal Observatory, Cape of Good Hope, in the years 1912–1917, under the Direction of S. S. Hough. Pp. xxii+442. (London: H.M. Stationery Office.) 70*s.* net.

## Diary of Societies.

### *THURSDAY*, November 10.

Royal Society, at 4.30.—A. J. Wilmott: Experimental Researches on Vegetable Assimilation and Respiration. XIV., Assimilation by Submerged Water Plants in Dilute Solutions of Bicarbonates and of Acids, and Improved Bubble Counting Technique.—E. G. Young: The Coagulation of Protein by Sunlight.—E. G. Young: The Optical Rotatory Power of Crystalline Ovalbumin and Serum Albumin.—A. R. Ling and D. R. Nanji: The Longevity of Certain Species of Yeast.—F. Kidd, C. West, and G. E. Briggs: A Quantitative Analysis of the Growth of *Helianthus annuus.* Part I., The Respiration of the Plant and of its Parts throughout the Life Cycle.—G. S. Currey: The Colouring Matter of Red Roses.

Royal College of Physicians of London, at 5.—Dr. R. O. Moon: Hippocrates in Relation to the Philosophy of his Time (Second FitzPatrick Lecture).

Child-Study Society (at Royal Sanitary Institute), at 6.—F. S. Marvin: The Teaching of History.

Royal Aeronautical Society (Students' Section), at 7.—W. L. Le Page: The Soaring Flight Problem.

Optical Society (at Imperial College of Science and Technology), at 7.30.—Dr. A. Gleichen: The Path of Rays in Periscopes having an Inverting System comprising Two Separated Lenses.—Dr. J. W. French: The Interocular Distance.—T. Chaundy: Note on the Thin Astigmatic Lens.

Institute of Metals (London Section) (at Royal School of Mines), at 8.—Prof. C. H. Desch: Plastic Flow in Metals.

Institution of Automobile Engineers (at Olympia).—T. Thornycroft; N. Macmillan: Marine Motors.

Harveian Society of London (at Paddington Town Hall), at 8.30.—Dr. G. A. H. Barton: Ether: Some Simple Methods and Musings.

Royal Society of Medicine (Neurology Section), at 8.30.—Sir William Thorburn and Dr. W. Harris: Discussion: The Treatment of Persistent Pain due to Lesions of the Central and Peripheral Nervous System.

### *FRIDAY*, November 11.

Oil and Colour Chemists' Association.

Physical Society of London (at Imperial College of Science and Technology), at 5.—Sir William Bragg: The Structure of Organic Crystals (Presidential Address).

Royal Astronomical Society, at 5.—W. H. Pickering: Suggested Explanation of Aberration.—A. R. Forsyth: Note on the Path of a Ray of Light in the Einstein Relativity Theory of Gravitational Effect.—I. van der Bilt: Observations of Minor Planets.—S. D. Tscherny: Observations of Comet 1921 (Reid).—H. S. Jones: Determination of the Photographic Scale of the North Polar Sequence.—E. E. Barnard: Variability of Nova Cygni 1876 (Schmidt).—F. C. Jordan: Note on Secondary Oscillations in the Light-curve of Cepheid Variables.—H. C. Plummer: Mr. Jordan's Note.—H. N. Russell and D. L. Webster: Note on the Masses of the Stars.—Sydney Observatory: Eclipses of Jupiter's Satellites I and II.—F. J. M. Stratton: The Spectrum of Nova Cygni III 1920.

Royal Society of Medicine (Clinical Section), at 5.30.

Institution of Electrical Engineers (London Students' Section), at 7.—Sir Philip Dawson: The Future of Railway Electrification.

Junior Institution of Engineers, at 8.

Royal Society of Medicine (Ophthalmology Section), at 8.30.—Dr. W. S. Inman: The Relationship of Squint, Left-handedness, and Stammering.—Dr. C. F. Harford: The New Psychology and its Relation to Problems of Vision.

### *MONDAY*, November 14.

Royal Geographical Society (at Lowther Lodge, Kensington Gore), at 5.—F. Dixey: The Physiography of Sierra Leone.

Surveyors' Institution, at 8.—J. H. Sabin: Presidential Address.

Chemical Industry Club (at 2 Whitehall Court).—E. H. Scholl: Remarks on a Recent Trade Visit to Germany.

### *TUESDAY*, November 15.

Royal Horticultural Society, at 3.—W. F. Bewley: Diseases of Tomatoes.

Royal Statistical Society, at 5.15.

Institution of Civil Engineers, at 6.—F. G. Royal-Dawson: The Indian Railway Gauge Problem.